AMENDED CLAIMS

1. A method for joining tissue comprising:

aligning and abutting edges of the tissue to be joined;

applying a biodegradable, biological solder or an analogue thereof, as herein defined, across the edges as one or more transverse strips; and

exposing the solder to an energy source under conditions which provide transfer of energy from the source to the solder to cause the solder to bond to the tissue surface adjacent the edges to provide a weld holding the edges together, wherein when more than one strip is applied, the strips are spaced apart to permit natural co-aptation of the join.

2. The method of claim 1 wherein the tissue is nerve tissue and the edges are ends of a peripheral nerve fascicle or a nerve fascicle and nerve graft material, and welding is not effected along the line of discontinuity so as to protect the nerve tissue from damage.

3. The method of claim 1 wherein the tissue is an anastomosis of a biological tube including veins, arteries, lymphatic, vasa efferentia, fallopian tubes, bile ducts, tubes of the alimentary canal, the ureter, the urethra, tear ducts or bronchi, and wherein a hollow cylinder of the solder is inserted into the tube between the discontinuous ends prior to the application of solder to the external surfaces of the tube being joined.

4. A method according to claim 3 wherein the discontinuous ends are held in place while energy is applied to the cylinder within the tube to cause the cylinder to bond with the inner surface of the tube.

5. The method of claim 1 wherein the tissue is a repair of an incision or tear of a biological organ including kidneys, liver or spleen, or of a biological surface such as the peritoneum or skin.

6. A method for repairing a discontinuity in a tissue surface comprising:

applying a biodegradable, biological solder or an analogue thereof as herein defined to the discontinuity; and

exposing the solder to an energy source under conditions which provide transfer of energy from the source to the solder to cause the solder to bond within itself and to the tissue surface to provide a weld holding the solder and tissues surrounding the discontinuity together.

7. The method of claim 1 or 2 wherein a first strip of the solder is applied and exposed to the energy source, then a second strip is applied close to the first strip and exposed to the energy source and this process is repeated to provide a plurality of strip welds.

8. The method of any one of claims 1 to 7 wherein the biodegradable, biological solder is a protein solder.

9. The method of claim 8 wherein the protein solder is a solid or a fluid solder.

10. The method according to any one of claims 1 to 9 wherein the energy source is a laser.

11. A method according to any one of claims 1 to 10 wherein the solder incorporates a substance which absorbs the energy from the energy source highly compared to the tissue.

12. A method according to claim 11 wherein the substance is a dye.

13. A fluid protein solder composition comprising 100 to 120 mass % protein relative to water as a starting amount prior to mixing, and a suitable solvent for the protein.

14. A fluid protein solder composition according to claim 13 comprising 100 to 110 mass % protein relative to water as a starting amount prior to mixing, and a suitable solvent for the protein.

15. A substantially solid protein solder comprising 120 to 230 mass % protein relative to water as a starting amount prior to mixing, and a suitable solvent for the protein.

16. A substantially solid protein solder comprising 170 to 230 mass % protein relative to water as a starting amount prior to mixing, and a suitable solvent for the protein.

17. A substantially solid protein solder comprising 210 mass % protein relative to water as a starting amount prior to mixing, and a suitable solvent for the protein.

18. A kit for joining tissues comprising, in a preferably sterile pack, a plurality of strips and/or shapes of a protein solder according to any one of claims 15 to 17.

19. A fluid protein solder composition comprising 100 to 120 mass % protein relative to water as a starting amount prior to mixing, and a suitable solvent for the protein, when used in a method according to any one of claims 1 to 10.

20. A fluid protein solder composition according to claim 19 further comprising a substance which absorbs the energy from the energy source highly compared to the tissue.

21. A fluid protein solder composition according to claim 20 wherein the substance is a dye.

22. A substantially solid protein solder comprising 120 to 210 mass % protein relative to water as a starting amount prior to mixing, and a suitable solvent for the protein, when used in a method according to any one of claims 1 to 10.

23. A substantially solid protein solder according to claim 22 further comprising a substance which absorbs the energy from the energy source highly compared to the tissue.

24. A substantially solid protein solder according to claim 23 wherein the substance is a dye.

25. A substantially solid protein solder according to claim 15 wherein the protein is albumin.

26. A fluid protein solder composition according to claim 13, wherein the protein is albumin.

27. A substantially solid protein solder according to claim 15 wherein the protein is one having a high proportion of ß sheet structure.

28. A substantially solid protein solder according to claim 27 wherein the protein has less than about 10% by weight α helical content.

29. A substantially solid protein solder according to claim 15 with the proviso that the composition is not one consisting of 70.3% by weight collagen, 16.9% by weight plasticizer and 9% by weight water.